

Release Notes

HP StorageWorks Windows Kit for Enterprise Virtual Array

Product Version: 3.0F

Fifth Edition (August 2004)

Part Number: AV-RUH2E-TE

This document contains the most recent product information about the HP StorageWorks Windows Kit V3.0F used for integrating host servers with the StorageWorks Enterprise Virtual Array (VCS version 3.020).

For the latest version of the Windows Release Notes and other documentation, access the HP storage web site at <http://www.hp.com/country/us/eng/prodserv/storage.html>.



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Printed in the U.S.A.

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Release Notes information

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Intended audience

This document is intended to assist customers who purchased the StorageWorks Enterprise Virtual Array and the associated StorageWorks Operating System kits. Other associated software packages are:

- StorageWorks Virtual Controller Software Package V3.020 for Dual HSV Controllers
- StorageWorks Snapshot for Virtual Controller Software V3.020 for Dual HSV Controllers

This document is also intended for use by HP Customer Service personnel responsible for installing and maintaining designated devices associated with this storage system.

Conventions

The following conventions are used throughout this document:

- Unless otherwise specified, all references to VCS V3.020 refer to the software package (kit) and documentation. These software packages and documentation support VCS V3.020.
- *The System Software for Enterprise Virtual Array* is the storage system software that contains Virtual Controller Software (VCS), Environmental Monitoring Unit (EMU) firmware, programmable component images, diagnostics, and message files. This storage system software is usually represented by a four-digit number like V3.020.
- Unless otherwise specified, all references to an HSV110 controller or an HSV110 controller pair should be interpreted as the HSV110 or HSV100 controller or controller pair.
- Unless otherwise specified, all references to the Enterprise Storage System or storage system should be interpreted as the EVA5000 or the EVA3000.
- Unless otherwise specified, all references to rack should be interpreted as the 9000-Series Enterprise Storage System Rack.
- Unless otherwise specified, all licensing references to host ID should be interpreted as the storage system world wide name (WWN).
- Unless otherwise specified, all references to the management appliance should be interpreted as the HP StorageWorks Management Appliance.
- Unless otherwise specified, all references to a single instance of a management agent should be interpreted as the HP StorageWorks Command View EVA.
- The term fabric means Fibre Channel Switched (FC-SW) connectivity.

New features

This section briefly describes new features and changes that are supported by the version 3.0F release of the platform kit.

New features for version 3.0F

The following are major enhancements included in the V3.0F release of the platform kit:

- Support for VCS 3.020
- The EVA 5000/3000 V3.0F platform kit contains the latest supported Emulex (5.10a9) and QLogic (9.0.0.13) drivers.

Note: This kit, which includes Emulex driver 5.10a9 and QLogic driver 9.0.0.13, does not support the configuration where a single Windows host has access to an EVA and a MA (HSG80) array simultaneously. The HBA revisions must remain at 4.82a16 for Emulex or 8.2.0.73 for QLogic drivers.

Note: The *Windows for Enterprise Virtual Array Installation and Configuration Guide V3.0b* has not changed versions.

Enterprise Virtual Array storage system

This document contains the most recent product information about the Enterprise Virtual Array. An Enterprise Virtual Array storage system consists of the following:

- One pair of HSV110 controllers.
- An array of physical disk drives that the controller pair controls. The disk drives are located in drive enclosures that house the support systems for the disk drives.
- Associated physical, electrical, and environmental systems.
- Command View EVA, which is the graphical interface to the storage system. Command View EVA software resides on the management appliance and is accessed through a browser.
- Management appliance, switches, and cabling.
- At least one host attached through the fabric.

Enterprise Virtual Array system software

The HP StorageWorks Virtual Controller Software (VCS) V3.020 included in the software kit provides storage software capability for the HSV110 controller.

Multiple storage system types

The extended interoperability of the heterogeneous SAN allows you to mix several types of HP StorageWorks storage systems. For more information about configuration rules, refer to the *HP StorageWorks SAN Design Reference Guide* at <http://h18000.www1.hp.com/products/storageworks/san/documentation.html>

Enterprise Virtual Array documentation

The Enterprise *Virtual Array Catalog of Associated Documentation* is included on the HP Technical Documentation page. You can display a comprehensive list of Enterprise Virtual Array documentation as well as documentation for products that may be required to operate your storage system. To access the technical documentation, go to

<http://h18006.www1.hp.com/products/storageworks/enterprise/documentation.html>

Supported configurations

Refer to the *Enterprise Virtual Array Quick Specs* for supported configurations. The *HP StorageWorks SAN Design Reference Guide* is a detailed guide for SAN configurations and is available at

<http://h18004.www1.hp.com/products/storageworks/san/documentation.html>

Note: Windows 2000 Datacenter support is not included in this release because of lengthier certification requirements for Datacenter solutions. Upon certification, Platform Kit Software Version 3.0 for Windows 2000 Datacenter and its associated documentation is made available.

Adobe Acrobat Reader

Adobe Acrobat Reader is required to read .pdf documentation in the kit. It can be downloaded from <http://www.adobe.com/products/acrobat/readstep2.html>.

Supported operating systems

The Enterprise Virtual Array storage system is compatible with the following operating systems:

- Tru64 UNIX
- Windows NT/Windows 2000/Windows Server 2003 (32- and 64-bit)
- OpenVMS
- Sun Solaris
- HP-UX
- IBM AIX
- Linux
- Novell NetWare

Table 1 lists the operating system's specifications.

Note: Table 1 contains current minimum level operating system specifications at the time of the Enterprise Virtual Array V3.020 release. Some component versions may change due to revision. For the latest information, go to <http://h18006.www1.hp.com/storage/index.html>

Table 1: Operating Systems Specifications

Platform	OS version		FCA (HBA)	Adapter firmware /Boot BIOS	Adapter driver (min)
Windows NT (Intel)	4.0/SP 6a	MSCS	KGPSA-CB 176479-B21	3.92a1/1.63a1	4.82a16
			FCA2101 245299-B21	3.92a1/1.63a1	4.82a16
			FCA2355 308540-B21	3.92a1/1.63a1	4.82a16
			FCA2404 LP9802	1.01a2/1.63a1	4.82a16
			FCA2404DC LP9802DC	1.01a2/1.63a1	4.82a16
			FCA2408 343073-B21	1.01a2/1.63a1	4.82a16

Table 1: Operating Systems Specifications

Platform	OS version		FCA (HBA)	Adapter firmware /Boot BIOS	Adapter driver (min)
Windows 2000 (32-bit)	5.0 SP 3, SP 4	MSCS	KGPSA-CB 176479-B21	*3.91a1/1.63a1	*4.82a16
				3.92a2/1.70a1	5-5.10a9
			FCA2101 245299-B21	*3.91a1/1.63a1	*4.82a16
				3.92a2/1.70a1	5-5.10a9
			FCA2355 308540-B21	*3.91a1/1.63a1	*4.82a16
				3.92a2/1.70a1	5-5.10a9
			FCA2404 305573-B21	*3.91a1/1.63a1	*4.82a16
				1.81a2/1.70a1	5-5.10a9
			FCA2404DC 323264-B21	*3.91a1/1.63a1	*4.82a16
				1.81a2/1.70a1	5-5.10a9
			FCA2408 343073-B21 LP982	*3.91a1/1.63a1	*4.82a16
				1.81a2/1.70a1	5-5.10a9
			FC Mezzanine Card for BL20P	*3.91a1/1.63a1	*4.82a16
				1.34	*8.2.0.73
				1.34	9.00.13
			FCA2214 281541-B21	*3.91a1/1.63a1	*4.82a16
				1.34	*8.2.0.73
				1.34	9.00.13
			FCA2214DC 321835-B21	*3.91a1/1.63a1	*4.82a16
				1.34	*8.2.0.73
				1.34	9.00.13
			A7387A LP1050DC	1.81a3/1.70a1	5-5.10a9
			A7388A LP1050	1.81a3/1.70a1	5-5.10a9

Table 1: Operating Systems Specifications

Platform	OS version		FCA (HBA)	Adapter firmware /Boot BIOS	Adapter driver (min)
Windows Server 2003 (32-bit)	5.2	MSCS	KGPSA-CB 176479-B21	*3.91a1/1.63a1	*4.82a16
				3.92a2/1.70a1	5-5.10a9
			FCA2101 245299-B21	*3.91a1/1.63a1	*4.82a16
				3.92a2/1.70a1	5-5.10a9
			FCA2355 308540-B21	*3.91a1/1.63a1	*4.82a16
				3.92a2/1.70a1	5-5.10a9
			FCA2404 305573-B21	*3.91a1/1.63a1	*4.82a16
				1.81a2/1.70a1	5-5.10a9
			FCA2404DC 323264-B21	*3.91a1/1.63a1	*4.82a16
				1.81a2/1.70a1	5-5.10a9
			FCA2408 343073-B21 LP982	*3.91a1/1.63a1	*4.82a16
				1.81a2/1.70a1	5-5.10a9
			FC Mezzanine Card for BL20P	*3.91a1/1.63a1	*4.82a16
				1.34	*8.2.0.73
				1.34	9.00.13
			FCA2214 281541-B21	*3.91a1/1.63a1	*4.82a16
				1.34	*8.2.0.73
				1.34	9.00.13
			FCA2214DC 321835-B21	*3.91a1/1.63a1	*4.82a16
				1.34	*8.2.0.73
				1.34	9.00.13
			A7387A LP1050DC	1.81a3/1.70a1	5-5.10a9
			A7388A LP1050	1.81a3/1.70a1	5-5.10a9

Table 1: Operating Systems Specifications

Platform	OS version		FCA (HBA)	Adapter firmware /Boot BIOS	Adapter driver (min)
Windows Server 2003 (64-bit)	5.2	MSCS	A7298A LP982	1.01a2/ 3.00a9	6-5.00a11
				1.81a2/ 3.00a9	6-5.10a9
			AB232A LP9802	1.01a2/ 3.00a9	6-5.00a11
				1.81a2/ 3.00a9	6-5.10a9
			AB466A LP1050DC	1.81a3/ 3.00a9	6-5.10a9
			AB467A LP1050	1.81a3/ 3.00a9	6-5.10a9

*Use this adapter firmware, bios, and driver for HSG80 and EVA controllers in the same SAN.

Switch support

This kit supports the Fibre Channel switches and firmware versions listed in the *HP StorageWorks SAN Design Reference Guide* at <http://h18000.www1.hp.com/products/storageworks/san/documentation.html>

Note: HP recommends that you do not mix switch firmware versions in your SAN. It is considered a best practice to uniformly upgrade all switches in the SAN.

Multiple path support

Windows with EVA storage requires the installation of StorageWorks Secure Path on each host to achieve high availability multiple path capability. Secure Path is licensed on a per-host basis. Each Windows host requires Secure Path for Windows. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page for Secure Path versions at <http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html>

Single path support

A Windows 2000, Windows NT, or Windows 2003 32- and 64-bit server require a single FCA to support single path mode.

Note: Single path mode should not be used in mission critical environments.

Supported servers

Windows supports Intel-based, ProLiant X86, and ProLiant BL20p, BL40p Blade Servers and HP Integrity Servers.

Operating constraints

Any operating constraints specific to the Enterprise Virtual Array hardware and Command View EVA can be found in their respective release notes.

SAN boot procedures

Bootting from the SAN is supported for Windows NT, Windows 2000, and Windows 2003 for multi-path configurations. SAN boot procedures are available on the StorageWorks web site at <http://h18000.www1.hp.com/products/storageworks/san/documentation.html>

Failover/failback

Failback preference settings for the HSV controllers are specific to the operating system. Refer to the Enterprise Virtual Array hardware release notes for details.

Avoiding problem situations

The following sections describe problems that may arise during platform kit operation and their solutions.

Command View EVA

The Command View EVA release notes contain information on problems pertaining to Command View EVA.

Using Critical Resource Management with Windows NT 4.0

EVA v3.020 incorporates a new Critical Resource Management feature. Critical Resource Management can send `Queue Full` responses to SCSI commands before the maximum allowable queue depth of 2048 is reached for a fabric port. Windows NT 4.0 does not properly handle these responses and I/O errors can result. Critical Resource Management can be disabled by selecting a custom host mode for NT 4.0 hosts. Use the following procedure to disable Critical Resource Management:

1. Click **Add a Host** in Command View EVA
2. Enter the following value in **Customer mode number** field:

00000004 1F80B8A8

Because disabling Critical Resource Management affects the entire array, it is strongly recommended that you run homogeneous Windows NT 4.0 environments and not mix Windows NT 4.0 hosts with hosts running other operating systems on a given EVA system if you are connecting with Windows NT 4.0 and using custom host mode.

Enterprise Virtual Array version 3.020 hardware

The hardware release notes in your VCS kit contain information on problems pertaining to Enterprise Virtual Array hardware.

Secure Path version

The Enterprise Virtual Array with VCS V3.020 requires the latest version of Secure Path for your operating system. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page to ensure that you have the current version of Secure Path for your operating system. The HP StorageWorks Enterprise Virtual Array 5000 specifications page can be accessed at

<http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html>

Codeload usage

When a maximum configured system is running at maximum load, codeload functionality is not effective due to Secure Path timing constraints. The system may time-out before codeload is complete. Because of this behavior, VCS upgrades should be done during off peak usage.

Avoiding problem situations with the SSSU

Changing comments on a disk enclosure

You cannot use the SSSU to change comments on a disk enclosure. Use Command View EVA to change comments on a disk enclosure. If you try to change a disk enclosure comment in the SSSU, the following error message appears:

Error: Invalid Operation

Changing the name of a disk enclosure

Changing the name of a disk enclosure is not supported with the SSSU or with Command View EVA. If you try to change a disk enclosure name in the SSSU, the following error message appears:

Error: Invalid Operation

Disk Resource Pending Timeout for large configurations

In order to ensure continuous operation of Disk Resources across SAN perturbations with Disk Resource counts greater than eight, HP recommends that the Pending Timeout parameter for each Disk Resource be increased from 180 seconds to 360 seconds.

To view and set the Pending Timeout parameter:

1. Open the **Microsoft Cluster Administrator**.
2. Select a **Disk Group** resource in the left pane.
3. Right-click each Disk Resource one at a time in the right pane and select **Properties**.
4. Select the **Advanced** tab from the **Properties** menu.
5. Locate the **Pending Timeout** value and change it to **360**.
6. Click **OK**.

Enterprise Storage System notes

Cable requirements

When an Enterprise Virtual Array is connected to a 1Gb switch, an SC-to-LC cable is required for host connectivity. [Table 2](#) and [Table 3](#) list the available cables.

Table 2: LC-SC cables

Length	Description	HP part number
2.0 m ± 40 mm	CA ASSY, LC-SC, Optical 2M	187891-002
5.0 m ± 80 mm	CA ASSY, LC-SC, Optical 5M	187891-005
15.0 m ± 150 mm	CA ASSY, LC-SC, Optical 15M	187891-015
30.0 m ± 300 mm	CA-ASSY, LC-SC, Optical 30M	187891-030
50.0 m ± 500 mm	CA-ASSY, LC-SC, Optical 50M	187891-050

Table 3: LC-LC cables

Length	Description	HP part number
2.0 m ± 40 mm	2-meter LC-LC Multi-Mode Fibre Cable	221692-B21
5.0 m ± 80 mm	5-meter LC-LC Multi-Mode Fibre Cable	221692-B22
15.0 m ± 150 mm	15-meter LC-LC Multi-Mode Fibre Cable	221692-B23
30.0 m ± 300 mm	30-meter LC-LC Multi-Mode Fibre Cable	221692-B26
50.0 m ± 500 mm	50-meter LC-LC Multi-Mode Fibre Cable	221692-B27

Host considerations

This section contains information and important reminders about the host servers.

Windows 2000 and Windows Server 2003 specific notes

- There are two situations in which drive-letter remapping might occur that could affect access to data by programs you may need to run. The first is replacing one server with another. The second is replacing an FC HBA in one of your systems. During such a system or adapter changeover, be sure to manually remap drives to drive letters using Disk Manager. This restores proper access to your data.
- If you replace an FC HBA in a server, you need to reinstall the HBA driver. Windows 2000/Windows Server 2003 will automatically reload the original driver for this adapter and reset many of the important registry settings. New connections are created on the HSV controller. Those WWNs should be assigned to the appropriate host.

Upgrading from Windows NT 4.0 to Windows 2000 or Windows Server 2003

If you are upgrading from Windows NT 4.0 to Windows 2000 or Windows Server 2003, you must remove the software components installed by the previous version of the Fibre Channel Setup utility. Follow these steps:

1. Remove the software components installed from the previous Fibre Channel Setup utility. To do this, locate the previous CD-ROM and run the utility. Follow the procedures in it to remove components. Alternately, you can use the **Add/Remove Programs** applet.
2. Upgrade from Windows NT 4.0 to Windows 2000 or Windows Server 2003 as instructed by Microsoft's documentation.
3. Reboot.
4. Install the HBA driver upgrade as instructed in the *hp SANworks Windows NT/Windows 2000 Kit V2.0 for Enterprise Virtual Array*.
5. Run the Fibre Channel Setup utility to complete your installation.

Registry growth in Windows

The Windows Plug-and-Play architecture has a limitation on the number of plug-and-play devices that are added or removed from the registry. Whenever devices are added or removed, or snapshots created or deleted, entries are added to the registry by the Plug-and-Play manager, potentially causing the registry to grow beyond the allowed capacity.

If more than 700 entries are in the registry, the next time the system reboots for any reason, the following error message occurs before the operating system boots up:

```
Failed to load Windows 2000 due to a file missing or corrupt in the
\WINNT\SYSTEM32\CONFIG\SYSTEM directory.
```

Refer to the Microsoft Knowledge Base article (Q269075), which provides more information about the registry growth problem.

Known limitations, large LUNs for Windows 2000

In Windows 2000, if any LUN greater than 7 is removed and a subsequent disk rescan is performed, the Found New Hardware wizard may ask you to finish the installation of the device that was removed. The Device Manager may show the device with a yellow warning icon on it. A reboot of the system removes the device.

Storage System Scripting Utility for Enterprise Virtual Array

Refer to the *Command View EVA Release Notes* prior to using the Storage System Scripting Utility (SSSU), as SSSU communicates directly with the Command View EVA.

Windows 2000 dynamic disk snapshots AND snapclones

The use of snapshots and snapclones in HP SANs is not supported in a Windows 2000 environment if the snapshot or snapclone is presented to the same Windows 2000 host as the LUN from which the snapshot or snapclone was created. Snapshot or snapclone are features of the HSG80 and HSV110 controller based HP Storage systems. All dynamic disks on a system have information in their metadata about the other dynamic disks on the system that exist. When Windows is presented with two dynamic disks that have the same information on them, it does not have code to resolve the conflict.